activity during winter and spring months (Gariyali 1975). It was observed while breeding these rats that the female, kept with a male, delivered litters twice successively. Within the period of a single breeding season during 1984-85, three such cases of pregnancy were observed.

In first case, a single female rat was caged with one male for mating purpose. On December 10, 1984, this female delivered 4 young ones. On January 12, 1985, the same female again gave birth to 2 young ones. The time between the successive litters was 33 days. In second case, one female rat, kept with a male, littered 3 young ones on January 16, 1985. After a gap of 34 days, i.e. on February 19, 1985, this female gave birth to another litter of 2 young ones. And in third case, one female, kept with a male, delivered 4 young ones on March 19, 1985. On April 17, 1985, the same female littered another batch of 4 young ones. Twenty nine days intervened between these successive litters. In all these cases, the male was removed about 4-5 days after the first littering.

The observed second time pregnancy and then littering in the fore-mentioned cases may well possibly be due to a fertile post-partum mating within short time after the first parturition, as stated earlier. In first two cases, the time interval between the birth of the two litters are 33 and 34 days respectively which are more than the normal gestation period (av. 28.5 days) for the bandicoot rats. It is possible that the post-partum mating combined with delayed implantation of the blastocysts may account for these two cases. The incidence and duration of delayed implantation of blastocysts are known to be affected by the length and intensity of lactation (Lamming 1978). In third case, since the time interval between two litters is 29 days which is the normal gestation period of this animal, it is obvious that soon after the first littering a fertile post-partum mating and normal implantation of the blastocysts had occurred.

N. P. S. CHAUHAN

Department of Zoology,
University of Delhi,
Delhi - 110 007,
*July* 22, 1986.

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## 8. ALBINISM IN THE BLUE BULL OR NILGAI, *BOSELAPHUS TRAGOCAMELUS* (PALLAS, 1766)

Albinism as a phenomenon of the lack of pigmentation resulting from the inability to synthetise melanin and caused by the absence of dominating allel is frequently observed among mammals of India, especially in such species as Chital or Axis deer — *Cervus axis* Erxleben, 1777, Blackbuck — *Antilope cervicapra* (Linnaeus, 1758), and Chinkara — *Gazella gazella bennetti* (Sykes, 1831). In specimens of these species bred in zoos of India —

chiefly in Ahmedabad — one can observe total albinism with red-coloured eyes. Albinism may be conditioned by the genes which at certain stage can slow down the production of melanin from tyrosine (Hutt 1972). Steinbacher (1951) takes into account a complete loss of melanin because of the genic split and he supposes that probability of the occurrence of individuals with albinism is increasing in the case when a couple is formed of a brother and sister because they are carriers of the recessive genes received by them from one of their parents. As a result of inbreeding white females of American tapir, *Tapirus terrestris* (Linnaeus, 1758) have been born in Poznan zoo as a result of the mating father and daughter (Smielowski 1979). Albinism in animals frequently occurs as a reaction of the organism to certain illnesses and injuries (Steinbacher 1951), to aging (Sokolowski 1962), unsuitable living conditions, overpopulation, and as a symptom of degeneration of a population (Ferens 1957). According to Hutt (1968) spontaneous depigmentation is probably hereditary, however its genetic and physiological basis are unknown. This phenomenon is similar to a premature greying of the hair in human beings (Hutt 1968). Similarly to a spontanous depigmentation the reasons if of a traumatic nature are also unknown. The effect of traumatic depigmentation is often observed in the birds whose heads have been pecked at by other birds. Perhaps the white spots on melanistic male of the black panther, *Panthera pardus* (Linnaeus, 1758) bred in Plock zoo from 24th August, 1969 to 7th February, 1984 are the result of a traumatic depigmentation, the same as observed in birds (Ptaszyk 1981). However, none of its numerous offsprings inherited depigmentation typical to their father.

The loss of a proper colour of the hair in mammals may result in hereditary changes, or it may have the character of nonhereditary acquired trait built as the result of disturbances in metabolism processes. Perhaps this brought about the disappearance of melanin synthesis, or caused its deficiency observed in a mature nilgai female, *Boselaphus tragocamelus* (Pallas, 1766) taken over from Amsterdam on 19th November 1975 and bred in Plock zoo since 21st April, 1979 (Smielowski 1980). The female has great, white spots on the neck and the trunk, particularly near the shoulder, buttock and on both sides of her body. Numerous, tiny white spots are also visible on the facial part of the head as well as on the upper parts of the hind and front limbs. The pattern of these spots has remained unchanged, despite of annual moulting in spring and in autumn. Since 1980 the female has had her regular offsprings, always twins. Despite her non-typical pigmentation she has always been the dominant in the herd, and also aggressive especially during the rearing of her progeny. Her offsprings have always normally coloured hair and part of them have been taken over by other zoos in the country (Lódz, Gdansk-Oliwa, Wroclaw). The young of this female are under continuous observation.

J. SMIELOWSKI

Department of Zoology,
Academy of Agriculture in Poznan,
60-625 Poznan, Wajska Folskiego 71 c,
Poland,
*September* 18, 1986.